

THE HAWAIIAN FUNGUS *AGARICUS ROTALIS* IN AUSTRALIA

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Agaricus rotalis K.R. Peterson, Desjardin, & Hemmes is a very distinctive mushroom fungus characterised by black marshmallow-shaped buttons, and black and white radial pattern on mature caps (see Figure 1). The fungus was documented in 2000 as a new species to Science from the Hawaiian Islands, where it occurs in woodchips and also in litter under *Casuarina equisetifolia* (Petersen *et al.* 2000, Hemmes and Desjardin 2002). Until recently *A. rotalis* had been unknown outside the tropical Hawaiian Islands. The species recently was reported from Estonia in cool-temperate northern Europe (see photo by Klas Jaederfeldt at <http://nrm.museum/kbo/krypt/svampplats/svampplats3.html.se>). *Agaricus rotalis* also now has been identified for the first time in Australia, in the Mediterranean climatic region of Perth in Western Australia.

During 2005, the second year of the Perth Urban Bushland Fungi Project, several collections of a large *Agaricus* were identified as *A. rotalis* (see www.fungiperth.org.au). These

collections occurred in widely varied habitats and locations within the greater Perth region, including the Swan Coastal Plain and Darling Scarp: (1) Edith Cowan University Campus, Pearson Street, Churchlands, among uncut grass under an old exotic *Eucalyptus grandis* tree, with some trees from pre-existing bushland nearby – Marri (*Corymbia calophylla*) and Jarrah (*Eucalyptus marginata*), collected by Neale Bougher 5 April 2005. (2) Floraland Nursery, Great Eastern Highway, Mahogany Creek, collected by Kevn Griffiths 5 April 2005. Growing indoors in humid fernery shade house along floor line with wood borders. (3) Kings Park, off Kings Park Road, West Perth, in several massive clusters of up to 100 fruit bodies amongst the leaf litter under an exotic hardwood tree with an old *Pinus* tree also nearby, collected by Neale Bougher 14 April 2005. (4) Cliff Sadlier Reserve, Cunningham Terrace, Daglish, in leaf litter and woodchips in area of *Eucalyptus marginata*, *Agonis flexuosa* woodland, collected by Neale Bougher 26 May 2005.



Figure 1. *Agaricus rotalis* from Churchlands, Perth, Western Australia. Photo by Neale L. Bougher.

Descriptive notes on *Agaricus rotalis* from Western Australia:

Cap: up to 70mm diameter; convex, finally flat. Margin incurved and fused to a thick veil in the button, later with a membranous white flap, and finally deeply split radially. Surface dry, very dark grey to almost black in young buttons, then paler and covered with minute appressed dark scales. Remaining black and contiguous at the cap centre. Then the surface splits radially from near centre to the margin with striking alternative radial strips of blackish-grey with minute scales, and white where the underlying white context is exposed. **Veil:** white, membranous, thick, forming a superior, pendulous but collapsing ring that becomes ragged and torn with age and may disappear entirely in some specimens. **Gills:** free, to 7mm deep, cream in button, then pale pink, dull pink, finally chocolate, crowded; edge smooth entire and concolorous; lamellules abundant. **Stem:** up to 80 x 8mm, cylindrical or slightly broadening towards base; with an abruptly swollen base to 15mm broad; solid then developing a narrow hollow in part. Surface dry, smooth, shiny white below the annulus dulling especially near the apex with age; pinkish when young above annulus.

Flesh: white and up to 5mm thick in pileus, unchanging except rapidly becoming bright yellow when cut at and near the base. Yellow stain fades after several minutes.

With photographs and descriptions of *Agaricus rotalis* now widely available, further records of this distinctive fungus are likely to be confirmed in other parts of Australia and the world, including tropical and temperate regions.

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